

**Development of the Gulf of Mexico Coastal Ocean Observing
System (GCOOS) and its Regional Association (GCOOS-RA):
Phase II
NA05NOS4731167**

**Progress Report
June 1, 2006 - November 30, 2006**

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on behalf of the
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1.0 Project Summary

1.1 Goals There are two overall goals of this project.

Goal 1: To establish a Regional Association (RA) to develop, support, and enhance the Gulf of Mexico Coastal Ocean Observing System (GCOOS) and be its representative within the National Federation of Regional Associations (NFRA). This includes certification of the RA. This goal is quite specific and will be attained before this three-year project ends.

Goal 2: To assist in the development of the GCOOS as a regional coastal ocean observing system (RCOOS) contributing to the U.S. Integrated Ocean Observing System (IOOS). This is the more general goal; these RCOOSs never will be complete, so development still will be ongoing when this project ends. However, this project's activities, which are enhancements of efforts that the principal investigator and other key personnel have been engaged in since late 2000, will make significant improvements in the organization, integration, planning and execution of GCOOS.

1.2 Objectives The objectives are listed here as contributing principally either to Goal 1 or 2. However, many objectives contribute to both goals.

1.2.1 Objectives contributing primarily to Goal 1

- 1.2.1-1 Ratify a governance structure for the GCOOS-RA by open membership of interested parties. A Memorandum of Agreement was ratified as the initial structure 01/2005.
- 1.2.1-2 Implement the GCOOS-RA structure by electing or appointing officers and members of all organizational structures. Board formed 06/2005; Councils/committees 04/2006.
- 1.2.1-3 Select GCOOS representatives to the NFRA. Selected in August 2005.
- 1.2.1-4 Prepare a GCOOS Business Plan. Draft available for comment.
- 1.2.1-5 Obtain certification of the GCOOS-RA by appropriate body of IOOS.
- 1.2.1-6 Strengthen or develop linkages between GCOOS and other RCOOSs (especially SECOORA and CaRA), federal agencies supporting national backbone observations in the Gulf of Mexico, and the Gulf coastal observing programs of Mexico and Cuba

1.2.2 Objectives contributing primarily to Goal 2

- 1.2.2-1 Form the GCOOS Education and Outreach Council, which will prepare an education and outreach plan for GCOOS. Implement the initial phases of that plan with resources provided by this project. Council formed by April 2006.
- 1.2.2-2 Broaden the number of users and better identify current and potential user requirements.
- 1.2.2-3 Establish data standards and protocols for GCOOS adhering to the DMAC Plan.
- 1.2.2-4 Continue integration of real-time data collection and of archived data in the region.
- 1.2.2-5 Entrain into the system additional operators of extant observing system elements, with focus on elements sponsored by state or local government or the private sector.

1.3 Tasks The project has six tasks with activities designed to meet the foregoing objectives:

- 1.3.1 Develop the GCOOS-RA,
- 1.3.2 Entrain users and develop user requirements,
- 1.3.3 Develop the education and outreach component,
- 1.3.4 Develop a GCOOS Business Plan—a blueprint for the future,
- 1.3.5 Assist with integrating, sustaining, enhancing, and monitoring the GCOOS, and
- 1.3.6 Develop linkages to other RAs, programs, agencies, and entities with similar interests.

2.0 Progress and Accomplishments

During this semiannual period of performance, numerous activities were undertaken to improve the GCOOS-RA organizational structure and advance planning and implementation of the RA and the GCOOS itself. A primary focus was on engaging the stakeholder communities. Without significant funding available for implementation of pilot projects, observational components, or data management activities, the GCOOS-RA nevertheless was able to make significant strides forward in development of the RA and interest by stakeholders in the regional ocean observing system. Activities and accomplishments for RA development are:

2.1 RA Organizational Structure

The Memorandum of Agreement (MoA), effective in January 2005 with minor revisions in October 2005 and January 2006, is the instrument that governs the GCOOS-RA. In August 2006, the Board operationally modified the Terms of Reference, given in the MoA, for the Observing Systems Committee (OSC), Products and Services Committee (PSC), and Data Management and Communications Committee (DMACC) in response to requests of those committees. The membership of the GCOOS-RA consists of Parties to the MoA within three classes: voting, non-voting (individuals), and associate (non-U.S. entities). Efforts are underway to expand the membership through work of the Membership Committee, Board members, and GCOOS Office staff. There were no changes in membership on the Board of Directors or Office staff. Council and Committee membership continues to evolve as the Board identifies needs. At its August 2006 meeting the Board decided to seek to expand representation on the OSC and PSC to include fisheries stakeholders. It also decided to add members to the Education and Outreach Council (EOC) who also are members of the education and outreach task forces of the Gulf of Mexico Alliance. Finally, the Board accepted the highest recommendation of the EOC to add an Education and Outreach Coordinator to the GCOOS Office staff.

Selected Specific Activities

- The Education and Outreach Council (EOC) recommended as highest priority hiring a GCOOS Education and Outreach Coordinator. The leadership of that committee prepared a position description, a work plan and a proposal for so doing. There are enough funds in years one and two of the current award to hire the Coordinator and carry out the work plan for the first year. A request to fund this proposal as a subcontract to Dr. Sharon Walker at the University of Southern Mississippi in Ocean Springs, MS, was transmitted to NOAA. Placement at USM will put all the Education and Outreach Coordinators for GCOOS, SECOORA, the Gulf of Mexico Alliance, and the Central Gulf Observing System in close proximity to each other and being directed by a core group which should result in close coordination and synergism.

2.2 Planning and Implementation

A draft of the GCOOS Business Plan has been prepared and posted to the GCOOS web for comments. Comments from the Board and Councils/Committees were obtained. These, together

with comments from others, are being considered as the draft is revised. Particular focus will be placed on how to plan around the substantial delay in expected federal funding levels. Included in the Business Plan will be reference to the GCOOS Observing System Plan that is being drafted by the Observing Systems Committee and that will address observing system design for the region. The Data Management and Communications Committee is considering data management issues, but lack of funding is a problem for development. Nevertheless, the GCOOS-RA is working on concepts of a data portal and a regional operations center and on potential funding sources for these activities.

The priorities of the GCOOS regional observing system are being identified and refined through sector specific workshops. Two were held in previous reporting periods (for the managers monitoring harmful algal blooms and for the oil and gas and related sectors) and information on them is posted to the GCOOS web. This reporting period was focused on development of workshops to be held in 2007 and on engaging the fisheries sector through the regional council and commission (see below).

Selected Specific Activities

- GCOOS representatives participated in near monthly telephone calls with representatives of other RAs, Ocean.US, and federal representatives. They also participated in numerous NFRA business and informational teleconferences. This has maintained increasingly better communication between the RAs.
- On June 19, 2006, the GCOOS Board of Directors participated in a regular telephone discussion. Additional guidance for the GCOOS Membership Committee was agreed on. The need for GCOOS board members to sign conflict of interest statements and the use of CRADAS was discussed. The status of focused stakeholder workshops to identify needed measurements and products was reviewed.
- The GCOOS Board held a telephone discussion on July 21 to review the status of the prospecti for the seven GCOOS pilot projects recommended by the Board. Each prospectus is the responsibility of an individual assisted by a small development team. As these prospecti are completed they are placed on the GCOOS web site, a list serve message calls for comments, and revisions are made. Two prospecti have completed this review and revision cycle this reporting period: one for a regional operations center and one for a proven 3-D circulation model for the Gulf of Mexico. For those we are beginning to seek funding. A third pilot, improving hurricane intensity forecasts, has focused on supporting efforts of other groups. One support effort includes a letter of support, dated in August 2006, from the Board to NOAA for conducting research to improve intensity forecasting, including an offer to help obtain platforms in the Gulf of making any necessary measurements. A second support effort is Board endorsement of the concept of a national research effort to improve forecasts such as elucidated in the prospectus for the Hurricane Intensity Forecast Improvements and Impacts Projection (HiFi) Program (see the GCOOS web site).

- The GCOOS Board held its semi-annual meeting in St. Petersburg, FL, on August 24-25, 2006. Minutes of the meeting are on the GCOOS web site. Personnel from the Gulf of Mexico Alliance and Gulf States Accord made presentations at the meeting and discussed with the Board ways GCOOS-RA and their respective entities can coordinate activities.
- On the evening of 224 August 2006, the Board members participated in a focus discussion group for the NOAA-CSC Gulf of Mexico Needs Assessment conducted by Chris Ellis and Dave Easter of CSC.
- On July 31, 2006, Ann Jochens and Worth Nowlin participated in their first telephone meeting (of many) of the organizing committee for the IOOS Regional Coastal Workshop held in Chicago on November 7-9, 2006. Jochens and Nowlin participated in the Workshop as the GCOOS representatives.
- On September 5, 2006, Ray Toll met with Rick Spinrad regarding GCOOS.
- On October 2, 2006, Ray Toll, now on the Interagency Working Group on Ocean Observations (IWGOO), attended a meeting where the two NOAA-supported conceptual design studies for the IOOS architecture were presented.
- Ann Jochens and Worth Nowlin represented the GCOOS-RA at the annual meeting of the National Federation of Regional Associations held in Chicago on November 5, 2006.
- The GCOOS Office has continued to refine its list serve of stakeholders. They receive pertinent information regarding system developments via email. This list serve also is used to solicit opinion and inputs.

2.3 Stakeholder Engagement

Stakeholder engagement for the reporting period has mainly been through email exchanges with the Stakeholder Council, information emails to the GCOOS list serve, planning of focused sector specific workshops, and presentations on GCOOS in various forums (see below for details).

Selected Specific Activities

- The GCOOS web site (<http://www.gcoos.org>) continues to undergo revision and improvement based on inputs from GCOOS Board, Councils and Committees. It is the major source of information regarding the GCOOS system of systems and development of a certified Regional Association (GCOOS-RA).
- On June 7, 2006, Ann Jochens and Worth Nowlin made an invited presentation to the Gulf of Mexico Fisheries Management Council in Tampa, Florida. The purposes of this presentation were (1) to introduce GCOOS and its Regional Association to the members of the Council and (2) to ask the Council for suggestions as how best to identify requirements for measurements and products needed by the Gulf of Mexico fishery constituencies:

commercial, recreational, and regulatory/research. We received useful suggestions and a standing invitation to attend future Council meetings.

- On June 7-8, 2006, the Conference on Ocean Literacy was held in Washington, DC. GCOOS Board member Sharon Walker attended on behalf of the Gulf of Mexico Alliance and was a moderator on the Regional Approaches to Ocean Literacy discussion.
- On June 7-9, 2006, Mike Spranger presented information on GCOOS at the First Annual Meeting of the IOGOOS - InaGOOS/JCOMM/GEOOS Use of Ocean Observations to Enhance Sustainable Development Training and Capacity Building Workshop for the Eastern Indian Ocean held 7-9 June in Kuta, Bali, Indonesia. His presentation was on "Lessons Learned: Building Regional Extension and Education Capacity for Coastal Ocean Observing Systems in the United States."
- On July 13, 2006, Mark Luther presented a talk on "IOOS and Public Health" at the Florida Environmental Health Association conference in Sarasota, FL.
- Ann Jochens attended the 30th Annual Conference of the Association of State Floodplain Managers in Albuquerque, NM, on 12-16 June 2006. She joined the Association, and has submitted an abstract to give a talk on GCOOS for the "Going Coastal" track of the 31st Annual Conference in June 2007.
- On June 26, 2006, Worth Nowlin, Alfredo Prelat, Raymond Toll, and Jan van Smirren traveled to Mexico for meetings with Mexican counterparts interested in developing GOOS. We met on June 27 at the Center for Atmospheric Sciences, Mexican National University (UNAM with 100,000 students) with the directors of that Center (Dr. Carlos Gay), the directors of the Institute of Marine Sciences and Limnology (Dr. Adolfo Gracia) and the Institute for Geophysics (Dr. Jose F. Valdez), and four other researchers from UNAM. All have interests in developing a consortium called GOOS Mexico (GOOSMX). The ensuing discussion was open and wide-ranging. We encouraged GOOSMX participants to join the GCOOS-RA as Associates by signing the GCOOS Memorandum of Agreement and to attend GCOOS meetings. We strongly suggested that GOOS MX subsystems producing real-time observations offer their data for integration and distribution (by the NOAA National Data Buoy Center) thereby joining GCOOS colleagues and providing evidence of participation in the larger intergovernmental GOOS.

On June 27, 2006, Worth Nowlin, Alfredo Prelat, Raymond Toll, and Jan van Smirren traveled to Villahermosa, capital of the State of Tabasco. On June 28-30 we participated in most of the activities of the Second Symposium on Coastal Ecosystems of the Gulf of Mexico and Caribbean sea held at the Biological Sciences Division of the Juarez University of Tabasco at the invitation of Dr. Wilfrido Contreras Sanchez, Director of the Division. Our participation included a major invited presentation on U.S. IOOS and GCOOS as well as leadership of a workshop breakout session on GCOOS. Dr. Contreras indicated that he will recommend that the university join the GCOOS-RA and believed that they will do so.

On the morning of June 30, 2006, the GCOOS group visited at Pemex Exploration and Production in Villahermosa at the invitation of Dr. Guillermo Perez Cruz, Director of their Deepwater Program. Those present included representatives of the Instituto Mexicano del Petroleo as well as Pemex. Pemex representatives indicated that they are now more interested in becoming an Associate in the GCOOS-RA than they were when GCOOS last visited with them in Mexico City during January 2005. We reviewed together advantages to becoming a GCOOS-RA member, and we encouraged Pemex to release real-time physical data via the NOAA National Data Buoy Center. [More information is available on the GCOOS web site.]

- Jan Van Smirren gave a presentation on GCOOS to at a PEMEX/INP workshop on 19-20 July 2006 in Veracruz, Mexico.
- Ann Jochens prepared an overview of the status of GCOOS for the October issue of the IOOOS newsletter Ocean Views.
- Ann Jochens and Worth Nowlin were invited to prepare a paper on "Development of a Coastal Ocean Observing System for the Gulf of Mexico" to be published in a future issue of the Marine Technology Society Journal dealing with observing systems. The manuscript was successfully reviewed and accepted in November 2006.
- On August 3, 2006, the first telephone meeting of the steering committee for a SECOORA-GCOOS-CSC Storm Surge and Inundation Workshop was held. Since that meeting, objectives, agenda, and expected outcomes from the meeting have been developed. The meeting date is set for January 24-26 in New Orleans, LA, and invitations have been sent. The focus will be on identification of observations and products needed for enhanced resilience to inundation. Additional information is available on the GCOOS web site.
- Planning is proceeding for a GCOOS Workshop for representatives of the maritime transportation industry. Transportation elements to be invited to participate include representatives from tankers, container ships, cruise ships, shipping agents, port authorities, pilots, LNG carriers, intercoastal waterway commercial traffic, and commercial transportation of people.
- On September 4, 2006, Worth Nowlin gave a lecture on "Status and Plans for the Gulf of Mexico Coastal Ocean Observing System" in the Oceanography Seminar series at Texas A&M University.
- On 12 September 2006, Jan Van Smirren presented a talk on "The Gulf of Mexico Coastal Observing system and Its Relationship with the Oil and Gas Business" in Houston, Texas, at the Society for Underwater Technology lunch.
- Ann Jochens presented a paper on GCOOS at the IEEE/MTS Oceans '06 Conference in Boston, MA, on 27 September 2006.

- On October 3-5, 2006, Frank Muller-Karger and Mitch Roffer participated in the NFRA "Workshop on Regional Needs for Coastal Remote Sensing" at the University of New Hampshire. Ray Toll attended as a steering committee member for the planning of that workshop.
- On October 25, 2006, Ann Jochens and Worth Nowlin attended a meeting of the Gulf States Marine Fishery Commission in New Orleans, LA. Jochens gave an invited presentation on IOOS and GCOOS. The purposes of this presentation were (1) to introduce GCOOS and its Regional Association to the members of the Commission and (2) to ask the Commission for suggestions as how best to identify fishery requirements for measurements and products from the Gulf of Mexico. Commission members were invited to join the GCOOS-RA; several already are parties to the MoA.
- On November 3, 2006, Ann Jochens presented at talk on "The Gulf of Mexico Coastal Ocean Observing System: a Regional Component of the U.S. Integrated Ocean Observing System" to the graduate level class on Ocean Observing Systems at Texas A&M University. She then discussed with the students aspects of the developing IOOS and GCOOS.

3.0 Scope of Work

Most major activities planned for 2006 (e.g., see timelines on GCOOS web site) were conducted. However, certification was not requested because the process is not yet in place with any federal entity to do so. The GCOOS-RA generally is on track for activities planned for the next funding period, except those which require the expected IOOS funding enhancements to the regions that are not available due to the present federal funding crisis. Within the limits of the federal funding constraints, the priorities for the next funding period are:

- Complete a new draft of the GCOOS Business Plan.
- Hire a GCOOS Education and Outreach Coordinator and proceed to carry out the EOC Action Plan. We have in the third year of the current budget for this project some funding for Education and Outreach activities, but not enough to fully fund the EOC Coordinator. *We will seek additional funds for the third year of this award to fully fund the activities of this Coordinator for his/her second year of support.*
- Obtain limited insurance for Board members and attendees at GCOOS meetings—*this may require some re-programming of funds.*
- Institute a formal conflict of interest statement for Board members and others needing a measure of protection.
- Conduct the Storm Surge and Inundation Workshop, scheduled for 24-26 January 2007 in New Orleans, LA, to obtain measurement needs and priorities from the emergency managers sector.

- Complete planning for and, if possible, conduct the marine transportation sector workshop. Plan stakeholder workshops for the recreational boating and urban planners/developers sectors.
- Continue with identification of needed measurements and products by GCOOS Stakeholders with priorities, estimated economic benefits, and suggested pilot projects to initiate them. GCOOS representatives will meet with personnel from NOAA's Southeast Fisheries Science Center for this purpose.
- Complete the seven prospecti for GCOOS Pilot Projects and identify and obtain funding therefor as feasible.
- Begin work on a GCOOS Communication Plan.
- Continue efforts to better integrate GCOOS activities with those of CaRA and Mexico.
- Attempt to energize our three Committees: Operating Systems, Products and Services, and DMAC. Each has an Action Plan. *The difficulty is the lack of adequate funding to carry out the recommended activities.*
- Increase membership in the GCOOS-RA.

4.0 Leadership Personnel

No changes in key scientific or management personnel related to the GCOOS Office are anticipated. Worth Nowlin continues as principal investigator. Dr. Ann E. Jochens continues as the GCOOS Regional Coordinator, Dr. Matthew K. Howard as the regional DMAC Coordinator, and Susan Martin as the administrative assistant in the GCOOS Office.

Parties to the GCOOS Memorandum of Agreement may elect new members to the Board of Directors to replace retiring members. The Board can change the membership of GCOOS Councils or Committees as it sees necessary. The present composition of the Board, Councils, and Committees is posted on the GCOOS web site.

5.0 Budget Analysis

Budget expenditures to date have been very close to anticipated or planned budgets. One exception is that we spent somewhat less than anticipated in salaries during year one so that we had some monies that we requested be transferred to the category of subcontracts so that we could increase the amount contributed to education and outreach activities via subcontracts.

We need an additional \$70,000 added to the third year budget of this project in order to provide full support for a second year of activities as recommended by the GCOOS Education and Outreach Council.

Financial reports are up to date, with the most recent being submitted to NOAA prior to October 2006 (SF 272).